WHAT IS CLAIMED IS:

1. A system for modifying a valve in a patient's heart to reduce regurgitation, the valve having an annulus, the system comprising:

a catheter configured for advancement through the patient's vasculature into the heart from a vascular access point remote from the heart; and

a supporting structure releasably coupled to the catheter, the supporting structure being adapted for deployment at a tissue location on or near the annulus, the supporting structure being movable between a delivery configuration suitable for advancement through the patient's vasculature and a deployed configuration suitable for modifying the annulus when deployed at the tissue location so as to reduce regurgitation in the valve.

2. The system of claim 1 wherein the supporting structure comprises a ring adapted to at least partially surround the annulus.

3. The system of claim 1 wherein the supporting structure is elastic and moves from the delivery configuration to the deployed configuration upon deployment from the catheter.

4. The system of claim 1 wherein the supporting structure is expandable from the delivery configuration to the deployed configuration.

5. The system of claim 4 further comprising an expansion element on the catheter for expanding the supporting structure.

6. The system of claim 5 wherein the expansion element comprises a balloon.

7. The system of claim 5 wherein the expansion element comprises a plurality of spokes.

8. The system of claim 1 further comprising a fastener for fastening the supporting structure to tissue.

9. The system of claim 8 wherein the fastener comprises suture.

10. The system of claim 8 wherein the fastener comprises a staple.

11. The system of claim 1 wherein the supporting structure is configured to circumferentially shorten the annulus.

12. The system of claim 1 wherein the supporting structure is configured for deployment over the annulus.

13. The system of claim 1 wherein the supporting structure is adapted for adhesive attachment to tissue.

14. The system of claim 1 wherein the catheter is configured to extend into the heart from a femoral venous location.

15. The system of claim 1 wherein the catheter is configured to extend across an inter-atrial septum of the heart.

16. The system of claim 1 wherein the valve is the mitral valve, the supporting structure being adapted for modifying the annulus of the mitral valve in the deployed configuration.

17. The system of claim 1 further comprising a guide catheter configured for advancement through the patient's vasculature into the heart from the vascular access point remote from the heart, the catheter and the supporting structure being positionable through the guide catheter.

18. The system of claim 1 wherein the supporting structure is configured to tighten the annulus.

19. The system of claim 1 wherein the supporting structure is deformable from the delivery configuration to the deployed configuration.

20. A method of modifying a valve in a patient's heart to reduce regurgitation, the valve having an annulus, the method comprising:

advancing a catheter through the patient's vasculature into the heart from a vascular access point remote from the heart, the catheter having a supporting structure releasably coupled thereto in a delivery configuration; and

deploying the supporting structure from the catheter at a tissue location on or near the annulus, the supporting structure having a deployed configuration upon

deployment, the supporting structure modifying the annulus so as to reduce regurgitation in the valve.

21. The method of claim 20 wherein the supporting structure comprises a ring, and wherein deploying comprises deploying the supporting structure so that the ring at least partially surrounds the annulus.

22. The method of claim 20 wherein the supporting structure is elastic and wherein deploying includes elastic recoil movement of the supporting structure from the delivery configuration to the deployed configuration upon deployment from the catheter.

23. The method of claim 20 wherein deploying comprises expanding of the supporting structure from the delivery configuration to the deployed configuration.

24. The method of claim 23 wherein expanding comprises using an expansion element on the catheter to expand the supporting structure.

25. The method of claim 24 wherein the expansion element comprises a balloon and using the expansion element comprises inflating the balloon.

26. The method of claim 24 wherein the expansion element comprises a plurality of spokes and using the expansion element comprises opening the plurality of spokes.

27. The method of claim 20 further comprising fastening the deployed supporting structure to tissue with a fastener.

28. The method of claim 27 wherein the fastener comprises suture.

29. The method of claim 27 wherein the fastener comprises a staple.

30. The method of claim 20 wherein modifying the annulus by the supporting structure comprises circumferentially shortening the annulus.

31. The method of claim 20 wherein deploying the supporting structure comprises deploying the supporting structure over the annulus.

32. The method of claim 20 further comprising fastening the supporting structure to tissue with adhesive.

33. The method of claim 20 wherein advancing the catheter comprises advancing the catheter from a femoral venous location.

34. The method of claim 20 wherein advancing the catheter comprises advancing the catheter across an inter-atrial septum of the heart.

35. The method of claim 20 wherein the valve is a mitral valve, the supporting structure modifying the annulus of the mitral valve.

36. The method of claim 20 further comprising positioning a guide catheter through the patient's vasculature into the heart from the vascular access point remote from the heart, and wherein advancing the catheter comprises advancing the catheter through the guide catheter.

37. The method of claim 20 wherein modifying the annulus comprises tightening the annulus.

38. The method of claim 20 wherein deploying comprises deforming of the supporting structure from the delivery configuration to the deployed configuration.

39. A method of modifying a valve in a patient's heart to reduce regurgitation, the valve having an annulus, the method comprising:

advancing a catheter through the patient's vasculature into the heart from a vascular access point remote from the heart, the catheter having an annuloplasty device releasably coupled thereto; and

deploying the annuloplasty device on or near the annulus so as to modify the annulus to reduce regurgitation in the valve.

40. The method of claim 39 wherein the annuloplasty device is disposed in a delivery configuration while advancing the catheter through the patient's vasculature, and wherein deploying the annuloplasty device comprises expanding the annuloplasty device into a delivery configuration suitable for modifying the annulus.

41. The method of claim 39 wherein modifying the annulus comprises shortening the annulus.

42. The method of claim 39 wherein modifying the annulus comprises tightening the annulus.

43. A method of modifying a valve in a patient's heart to reduce regurgitation, the valve having an annulus, the method comprising:

advancing a catheter through the patient's vasculature into the heart from a vascular access point remote from the heart, the catheter carrying a plurality of anchors;

placing the anchors on or near the annulus;

coupling a filament to the anchors; and

tightening the filament so as to modify the annulus to reduce regurgitation in the valve.

44. A method of modifying a valve in a patient's heart to reduce regurgitation, the valve having an annulus, the method comprising:

advancing a catheter through the patient's vasculature into the heart from a vascular access point remote from the heart, the catheter carrying a plurality of staples; and

applying the staples to tissue on or near the annulus so as to modify the annulus to reduce regurgitation in the valve.

45. A method for repairing an atrioventricular valve, said method comprising:

accessing a patient's vasculature remote from a heart;

advancing an interventional catheter through the vasculature into the heart, the interventional catheter having an interventional tool at a distal end thereof;

delivering an implantable device through the interventional catheter to a target location in the heart with the use of the interventional tool; and

modifying the annulus with the use of the implantable device in a manner that reduces leakage through the valve during ventricular systole.

46. A method as in claim 45 wherein the implantable device comprises a supporting structure and modifying the annulus comprises attaching the supporting structure to the annulus.

47. A method as in claim 46 wherein the supporting structure comprises a ring and modifying the annulus comprises affixing the ring around the circumference of the annulus.

48. A method as in claim 47, wherein the interventional tool comprises a balloon and delivering the implantable device comprises expanding the balloon having the ring mounted thereon within the annulus.

49. A method as in claim 45, wherein the implantable device comprises a plurality of anchors and modifying the annulus comprises circumferentially tightening the annulus by drawing at least some of the plurality of anchors together.

50. A method as in claim 45, wherein the implantable device comprises a plurality of plicators and modifying the annulus comprises circumferentially tightening the annulus by plicating portions of the annulus with the plicators.